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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,807	06/13/2005	Yukuo Katayama	124237	5827

25944 7590 05/01/2007

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EXAMINER
RINEHART, KENNETH

ART UNIT	PAPER NUMBER
3749	

MAIL DATE	DELIVERY MODE
05/01/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/538,807	KATAYAMA, YUKUO	
	Examiner	Art Unit	
	Kenneth B. Rinehart	3749	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 March 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,9-18 and 20-24* is/are rejected.

7)☒ Claim(s) *8 and 19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 June 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 3/12/07 have been fully considered but they are not persuasive. The applicant's arguments are not persuasive as the reference reads on the claim language. The nozzle of Bisset becomes gradually larger in a direction of flow of the mixture where this mixing and heating occurs in the nozzle. Regarding the pressure at the discharge of the pump argument of the applicant, if the pressure at the discharge of the pump were not higher than in the furnace or the reactor, the fluid would not flow form the discharge to the reactor. It would flow in the opposite direction. Regarding the optimization arguments, flow rates are discussed in column 3, lines 64-68. Next the applicant states that Bissett fails to describe any configuration in which an inner diameter of a pipe in a heater becomes larger gradually or stepwise along the flow direction of flow. The examiner disagrees as the nozzle of Bisset does describe this feature. The applicant states that the stepwise or gradual limitation reduces or prevents erosion and coal sedimentation. The examiner can find discussion in the specification concerning sedimentation in the pipes, but no discussion of how the shape prevents erosion or sedimentation.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-7, 9-18, 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bissett et al (4153427). Bissett et al discloses heating the mixture with a heater to convert at least a part of the water in the mixture into a form of steam and feeding the whole mixture to a combustion furnace or gasification reactor (col. 3, lines 53-56), wherein the whole mixture is transferred between an inlet of the heater and the combustion furnace or gasification reactor by a pump (22, fig. 1), characterized in that a discharge pressure at the pump is higher than an inner pressure in the combustion furnace or gasification reactor at least by 1.5 MPa and not higher than 22.12 MPa, a discharge pressure at the pump is higher than an inner pressure of the combustion furnace or gasification reactor by from ...(col. 3, lines 32-37, pressure at discharge of pump will inherently be higher than in furnace or reactor) and that a flow rate of said mixture with at least a part of the water being in a form of steam is from ... m/s in a pipe in the heater and in a pipe between an outlet of the heater and an inlet of the combustion furnace or gasification reactor (42, fig. 1), wherein an inner diameter of the pipe in the heater becomes larger gradually along a direction of the flow of the mixture, so that the water in the mixture is gradually converted into a form of steam (col. 4, lines 9-24), wherein an inner diameter of the pipe in the heater becomes larger ... along a direction of the flow of the mixture, so that the water in the mixture is ... converted into a form of steam (col. 4, lines 9-24), said non-flammable gas is steam, nitrogen, or carbon dioxide (steam, figure 1), substantially all of the water is converted into a form of steam (col. 4, lines 25-28), the heating by the heater is carried out at a temperature of from 150 to 450 degrees C at a pressure of from 1.5 to 22.12Mpa, the heating by the heater is carried out at a temperature of from 200 to 400 degrees C at a pressure of from 3.0 to 22.12 Mpa, the heating by the heater is carried out at a temperature of from 200 to

365 degrees C at a pressure of from 4.0 to 20.0 Mpa, the heating is carried out with a heating medium of a temperature of from 200 to 600 degrees C (col. 3, line 37, col. 4, line 12), a pre-heater is provided upstream of the heater (30, fig. 1), a water content in the mixture comprising a burnable solid and water is from 27 to 80 weight %, relative to the total weight of the mixture, wherein a water content in the mixture comprising a burnable solid and water is from 30 to 40 weight %, relative to the total weight of the mixture, a water content in the mixture comprising a burnable solid and water is from 30 to 35 weight %, relative to the total weight of the mixture (col. 3, line 30) . Bissett discloses the claimed invention except for 6 to 50, 3.0 MPa to 15.0 Mpa, 4.0 MPa to 15.0 Mpa, 8 to 40, 10 to 40, stepwise, 2 to 12, 4 to 12, 6 to 12, said non-flammable gas is blown in just downstream of a place where the inner diameter of the pipe becomes larger, stepwise. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have 6 to 50, 3.0 MPa to 15.0 Mpa, 4.0 MPa to 15.0 Mpa, 8 to 40, 10 to 40, 2 to 12, 4 to 12, 6 to 12, since it has been held that the where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. At the time the invention was made it would have been an obvious matter of design choice to a person of ordinary skill in the art to have said non-flammable gas is blown in just downstream of a place where the inner diameter of the pipe becomes larger, stepwise because applicant has not disclosed that the location or shape provides an advantage, is used for a particular purpose or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with either the location or shape of Bissett or the claimed location or shape because both locations and shapes perform the same function equally well.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bisset et al (4153427) as applied to claim 1 above, and further in view of Schueler (5657704). Bisset et al discloses applicant's invention substantially as claimed with the exception of a pressure reducing valve is provided at the outlet of the pre-heater. Schueler teaches a pressure reducing valve is provided at the outlet of the pre-heater (14, fig. 2) for the purpose of preventing backflow. It would have been obvious to one of ordinary skill in the art to modify Bisset by including a pressure reducing valve is provided at the outlet of the pre-heater as taught by Schueler for the purpose of preventing backflow.

Allowable Subject Matter

Claims 8 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth B. Rinehart whose telephone number is 571-272-4881. The examiner can normally be reached on 7:20 -4:20.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

kbr

KENNETH RINEHART
PRIMARY EXAMINER